12
The Shakers and the Invention of the Circular Saw
A Circular Argument

CHRISTIAN GOODWILLIE

PERHAPS THE GREATEST of all Shaker inventions was the circular saw, developed by Sister Tabitha Babbitt at Harvard, Massachusetts, in 1813—or so myriad sources would have us believe. In fact, it is unlikely that the Shakers invented the circular saw, despite numerous Shaker and non-Shaker printed claims. This brief examination of the history of the circular saw cannot hope to be definitive, but an examination of primary source materials relating to the question reveals that if the Shakers were not the very first to use the circular saw, they were certainly early proponents.

Since the late Middle Ages, carpenters had used waterpower to drive saw mills with reciprocating blades. As large logs, or "deals," were slowly moved forward along a horizontal surface or "carriage," a blade or series of blades worked up and down, cutting them into smaller pieces. Until relatively late in the eighteenth century, split and hewn timbers were considered superior for building because the wood was separated along its natural grain, thus retaining maximum tensile strength through the wood fibers. Although split and hewn timbers may have been misshapen, they were generally considered stronger than sawn timbers whose grain had been disrupted by cutting.

As with many other important inventions in history, the circumstances surrounding the development of the circular saw are unclear. There are many early references, so it is almost impossible to establish primacy for any given example. For sawyers, carpenters, and joiners the advantage of the circular saw was immediately clear: the rotary blade allowed for continuous cutting at a very high rate of speed. The combined motions of the advancing wood and rapidly spinning blade made processing materials faster, more accurate, and more efficient.

The radius of early circular saw blades was relatively small and allowed only for the cutting of what carpenters of the late eighteenth and early nineteenth centuries called "small stuff"—i.e.,

FACING PAGE: This stove was called a "super-heater" because the presence of an upper firebox forced the heated air through this second chamber and radiated much more heat into a room.

clapboards, lath, and sash. These smaller circular saws were commonly referred to as "buz" or "buzz saws." Herein lies a key point in the argument over whether the Shakers invented the circular saw. Though it is certain that they did not invent the smaller "buzz saw," could they have developed the larger circular saw used in mills to process large timber?

The first documented patent in an English-speaking country that refers to them reads: "saws, which are a circular figure" for cutting wood (as well as metal, stone, and ivory). It was granted to Samuel Miller in Southampton, England, in 1777.[1] Smaller, circular metal blades had been used in surgical instruments for many years prior to this date. Other than a series of vague references in secondary works on the history of saw technology, there is a dearth of primary source material about circular saws through the rest of the eighteenth century. Part of "An Oration" delivered by a "citizen of the United States" on July 11, 1800, reads, ". . . we have learned the use of the saw mill from the Hollenders: if the Russians should further instruct us in its improvement, by the application of the circular saw, without a retrograde motion."[2] This passage mirrors claims often found in a variety of secondary sources that the Russians and Dutch both influenced the development of the circular saw in England. Further research in primary source materials in those countries may yield much valuable information.

An early book on the history of saws cites the following British uses of circular saws, though without documentation: "In 1804 a man named Trotter secured a patent on a circular saw, and Sir Samuel Bentham (who later invented a circular saw made in segments) made a circular saw for the British Admiralty prior to 1800. Historians credit T. Brunel with first bringing circular saws into important service. He employed them for cutting ship's blocks—an application adopted by the British Admiralty Board in 1804 for the Portsmouth Yard. Brunel patented a veneer-saw in 1805, marking another advance."[3]

So, where do the Shakers fit into all of this? Intriguingly, the next contemporary reference located is an advertisement, originally published in the *Pittsfield [Mass.] Sun* and reprinted in the *United States' Gazette for the Country* for December 8, 1813.

> We the subscribers, having been threatened with prosecution by certain purchasers of patent rights, for making and using of certain kinds of machinery, which are of our own invention, and have been in use among us for many years prior to all patent dates, we take this opportunity, in order to prevent all further imposition upon ourselves and the publick, to publish the following useful machines viz. Circular Saws, of all sizes, from 19 to 21 ½ inches in diameter, fine or coarse, suitable for splitting of lath, grooving of boards, or any other use, to move by water, and or foot, and have been in use for 20 years. Likewise, a saw for the purpose of sawing, a circle, such as Half Bushel, Tub, and Pail Bottoms, and Fellies of Wheels of any description, and has been in use 15 years."
>
> *From the People Called Shakers*, Nov. 1, 1813.[4]

This startling claim, that the Shakers had been using large diameter circular saws since at least 1793, is unsubstantiated by any other contemporary source and would give them priority over any other known American developer or user. The Shakers' had to establish their rights for the use of such a saw without the purchase of a patent right because the sale of such patent rights for circular saws first occurred sometime around 1815.[5]

Brother Isaac Newton Youngs of New Lebanon, New York, published his monumental history of the Shakers, *A Concise View of the Church of God,* in 1856. This remarkable work comprehensively treats every aspect of Shaker life, including many industries. In the section on "Carpenter & Joiner Work" he states: "After the year 1813 there were some important improvements, particularly the buz saw was introduced, for straightening & slitting stuff."[6] Strangely, Youngs makes no mention of a circular saw in the sections on building, coopering, blacksmithing, or anywhere else in his manuscript. In terms of chronology, he seems to indicate that the circular saw was not introduced, at least at New Lebanon, before 1813. This omission is significant in light of Youngs' careful attention to accuracy and detail in noting the appearance of other new technologies among the Believers. The date conflicts with the newspaper advertisement cited above, as well as with other Shaker claims which will be examined later.

The mid-1810s seem to have been a time of ferment regarding circular saw technology in the United States and England. An undocumented reference in a 1916 book states: "The first circular saw in this country is supposed to have been produced by Benjamin Cummins, about 1814, at Bentonsville, N. Y.—his facilities consisting solely of the ordinary tools and equipment of a blacksmith's shop."[7] George Smart of London patented a bench-mounted circular saw in 1815. An engraving of this saw was first published in Philadelphia in 1816.[8] A newspaper article from Baltimore dated July 21, 1817, trumpets a saw "four feet, or upwards, in diameter" used for cutting mahogany veneers.[9] This manifestation of the circular saw was patented by Adam Stewart and powered by a steam engine. An October 10, 1817, advertisement in the *Dedham [Mass.] Gazette* announced that a "Circular Saw will in a few weeks be in operation for sawing Veneers."[10] Other newspaper notices of the period demonstrate the quick spread of Stewart's patented mill, as well as the use of circular saws based on Stewart, and the Frenchman Brunot (possibly the Brunel cited above?), in New England and the mid-Atlantic states. According to an early history, "Circular saws for manufacturing lumber [are] supposed to have originated in a patent granted March 16, 1820 to Robert Eastman and J. Jaquith of Brunswick. Me."[11] Advertisements for Robert Eastman's "Rotary Sawing Machine" began appearing in New England newspapers in 1821, and a full description and an illustration of it were published in the *American Journal of Science* in 1822.[12]

The Shakers reenter the picture at this point through an article published widely in American newspapers in 1821. Originally published in the *Ballston [N.Y.] Farmer,* it read:

> Mechanics. *Useful discovery*—. The circular saw, as far as I know, is a recent invention, and certainly a very useful one. The shakers, at their village in Watervleit, near Albany, have this invention in very excellent use and great perfection. In a saw mill there, they have a set of machinery on this principle, erected at a very trifling expense, which, for cutting stuff for a window sash, grooving a floor plank, gaging clapboards, &c. with one man and a boy to attend it, will perform the labor of thirty men.
>
> But I saw a new and novel machine in operation in this house, so full of ingenious machinery, which deserves a place among the most useful discoveries in mechanics of the present day. It is a circular buzz of thin soft sheet iron, six inches in diameter, which cuts the hardest steel almost with the ease of tallow. The buzz is well secured by cottrels on an axis turned by a band, and moves with inconceivable velocity, and the engine is so constructed as to secure in a proper position and bring into contact whatever you wish to cut. A steel saw-mill saw-plate was placed in the machine, having the old teeth all taken off, and in four minutes it cut, with perfect accuracy eleven teeth—or half cut—for, in order to finish the cutting, the saw must be turned in the machine, so as to come work-wise for cutting the other half. With a machine of this kind in perfect order, I should say that the old teeth might be all cut from an old saw-mill saw, by a perfectly straight line, and a new set of teeth cut, gaged perfectly, in less than an hour. The cutting is done so accurately, that very little filing is necessary to complete the dressing of the saw for business. I saw it in operation in July, 1817, and immediately sent a description of it to the publishers of the Cyclopedia, but I do not know whether it has been published.—The Shakers consider the discovery too useful to be monopolized by a patent, and consented to my giving it publicity as public property. Like most others, this discovery was by accident. A piece of sheet tin nearly round, was put into the lathe, and a file applied to the edge, in order to dress it down to a perfect circle. The file had no effect upon the tin, but the tin cut the file, as, in other matters, it sometimes happens that the biter gets bitten. Learning this fact, an ingenious young Shaker, Freegift Wells, tried the experiment, succeeded, and constructed the machine which I saw. I applied to it pieces of old files, and it cut them in two almost as quick as a candle could have been cut with hot iron.[13]

This article describes a circular saw for cutting metal, apparently developed by the Shakers, but interestingly describes it as being used for cutting new teeth for a traditional straight-blade reciprocating saw. So, were the Shakers using large diameter saw blades for milling timber by 1820? The answer by the account in this article seems to be no.

Circular saws were in widespread use by the early 1820s, so tracking their development further is not germane to this article. Yet, what of the repeated Shaker claims to have invented the circular saw? A manuscript history of the Enfield, New Hampshire, Shaker community written in 1858 states that "The first 'wheel' or 'circular saw' used here, was a slab saw, made with spokes and a rim of steel. This was first used, in the mill about 1803."[14] If this claim could be verified, it would certainly put the Shakers at the forefront of circular saw use in the United States.

The *Transactions of the New York State Agricultural Society* for 1870 records the gift of "a circular saw 12½ inches in diameter, said to have been forged in 1792, by Benjamin Bruce, of New Lebanon, N.Y." This saw was donated by Brother George Wickersham and is still in the collection of the New York State Museum. However, the date attributed to it by Br. Wickersham cannot be proven independently.[15] The Shakers themselves published news of the gift in *The Shaker* for January 1876, with the claim that "the first buzz, or circular saw ever made, was manufactured at Mt. Lebanon Shakers, and the original deposited in the Museum of the State,"[16] thereby asserting that it was they who had actually invented the circular saw. They reiterated that claim in *The Shaker* for August 1877.

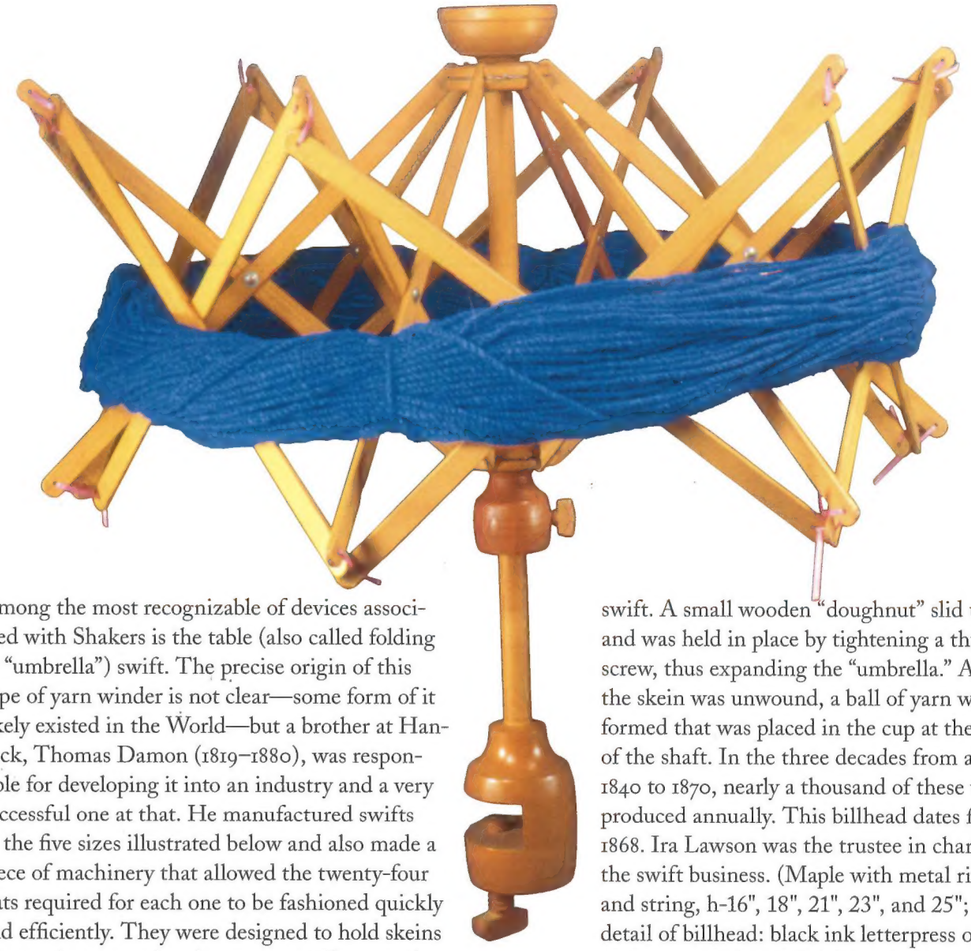
Watervliet Brother D. A. Buckingham stated, "The first *circular saw* ever made was invented by the Lebanon Shakers, and may be seen to-day in the 'State Geological Department,' at Albany, N.Y."[17] The 1878 history of Columbia County, New York, stated: "It is generally believed that the buzz-saw was here invented, by a Shaker named Amos Bishop. This saw is now preserved in the State cabinet at Albany."[18] Here, attribution for the invention has shifted from Benjamin Bruce to Amos Bishop.

What of Sister Tabitha Babbitt of Harvard, Massachusetts? The case for her did not appear for another two decades, in the *Manifesto* of February 1899.

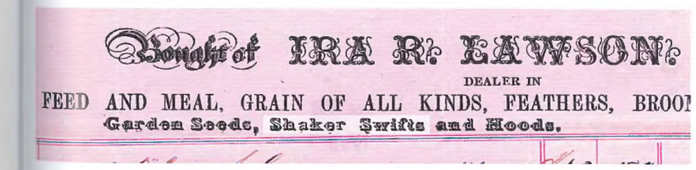
> One day while watching the men sawing wood, she noted that one half the motion was lost and she conceived the idea of the circular saw. She made a tin disk, and notching it around the edge, slipped it on the spindle of her spinning wheel, tried it on a piece of a shingle and found that her idea was a practical one, and from this crude beginning came the circular saw of to-day. Sister Tabitha's first saw was made in sections and fastened to a board. A Lebanon Shaker later conceived the idea of making the saw out of a single piece of metal.[19]

Sarah (Tabitha) Babbitt was born at Hardwick, Massachusetts, on December 10, 1779. She was admitted to the Harvard Shaker community on August 12, 1793—the same year Benjamin Bruce or Amos Bishop are supposed to have invented the circular saw at New Lebanon. The information about her invention was first published in the *Boston Sunday Globe* for October 30, 1898, as part of an article on Harvard Eldress Eliza Babbitt. Obviously, the Harvard Shakers supplied the information, but since Tabitha Babbitt had died in 1853, it could not be verified. The case for Babbitt as inventor was re-told by Anna White and Leila S. Taylor in their history, *Shakerism: Its Meaning and Message*, which basically repeated the story from *The Manifesto*.[20] This reference has somehow found its way into countless later works on the Shakers, their inventions, and the history of technology in general.

Where does all of this leave us? It is safe to say that the Shakers did not invent the circular saw, but they do appear to have been among its earliest users, and may have created new forms and uses for it. Too often, proven Shaker innovation is marginalized in favor of unsubstantiated claims for Shaker invention. This is a disservice to a group whose more than two hundred years of success in this country is a tribute to their ability to alter, adapt, and improve almost every technology they encountered.

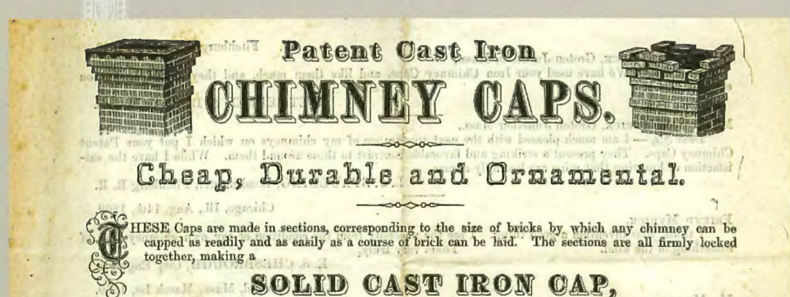


Among the most recognizable of devices associated with Shakers is the table (also called folding or "umbrella") swift. The precise origin of this type of yarn winder is not clear—some form of it likely existed in the World—but a brother at Hancock, Thomas Damon (1819–1880), was responsible for developing it into an industry and a very successful one at that. He manufactured swifts in the five sizes illustrated below and also made a piece of machinery that allowed the twenty-four slats required for each one to be fashioned quickly and efficiently. They were designed to hold skeins of yarn that were placed over a partially opened swift. A small wooden "doughnut" slid up and was held in place by tightening a thumbscrew, thus expanding the "umbrella." As the skein was unwound, a ball of yarn was formed that was placed in the cup at the top of the shaft. In the three decades from about 1840 to 1870, nearly a thousand of these were produced annually. This billhead dates from 1868. Ira Lawson was the trustee in charge of the swift business. (Maple with metal rivets and string, h-16", 18", 21", 23", and 25"; detail of billhead: black ink letterpress on pink paper, 6¾" × 8½". Miller Collection.)

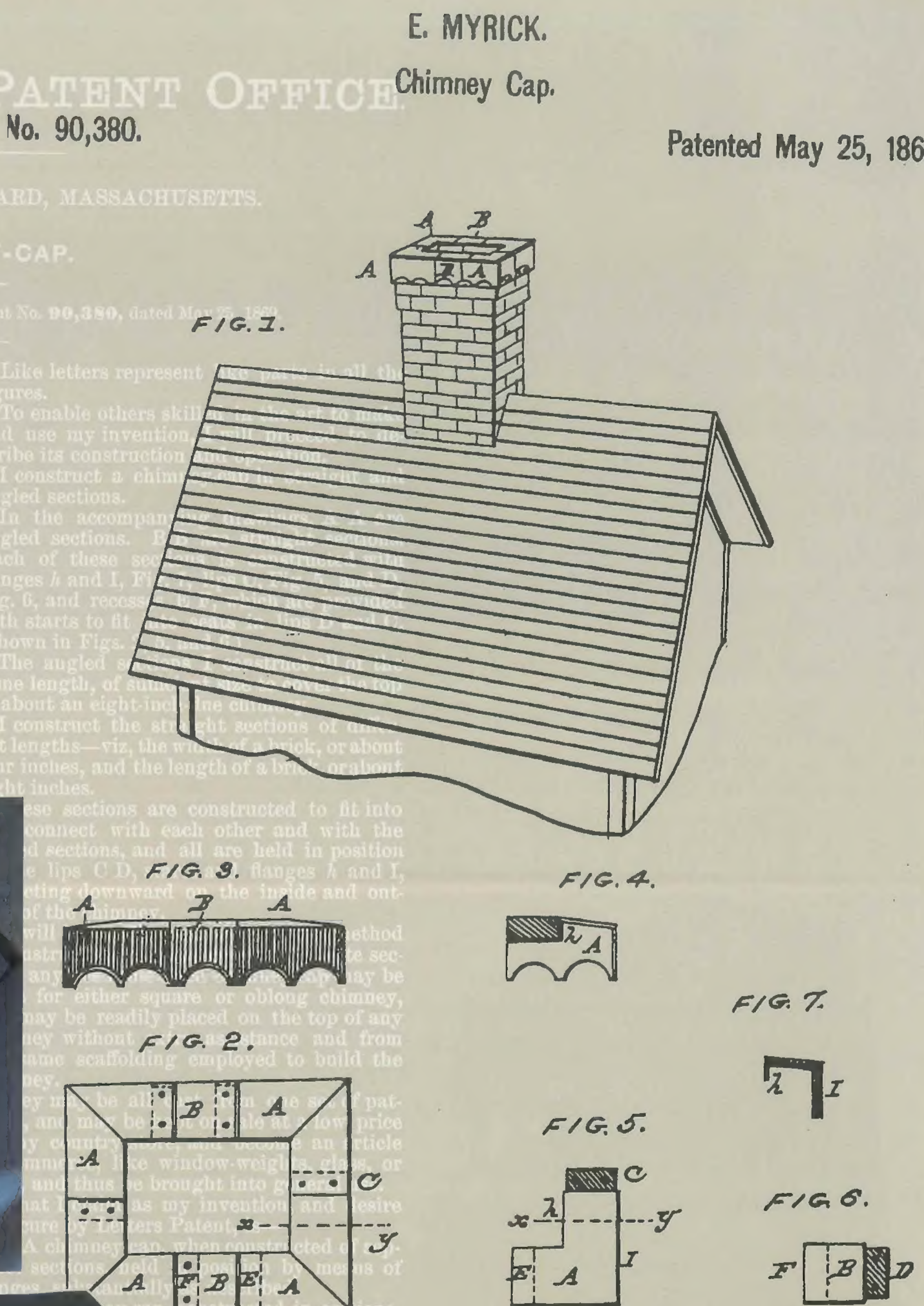

Bought of IRA R. LAWSON.
DEALER IN
FEED AND MEAL, GRAIN OF ALL KINDS, FEATHERS, BROOM
Garden Seeds, Shaker Swifts and Hoods.

Elder Elijah Myrick (1824–1890) patented a cast-iron chimney cap (U.S. Patent No. 90,380) in 1869. In the Letters Patent he states: "It is well known that the upper courses of brick in commonly constructed chimneys are liable to become loose by the actions of weather upon the mortar. . . . To overcome this difficulty cast-iron caps, made of one piece, have been used to some extent; but the objection . . . has been found in getting caps to fit the various sizes and forms of chimneys. . . . My invention consists in constructing cast-iron or metal chimney caps in sections or divisions, in such manner that the same patterns be used, and the castings therefrom will answer for all the various-sized chimneys."

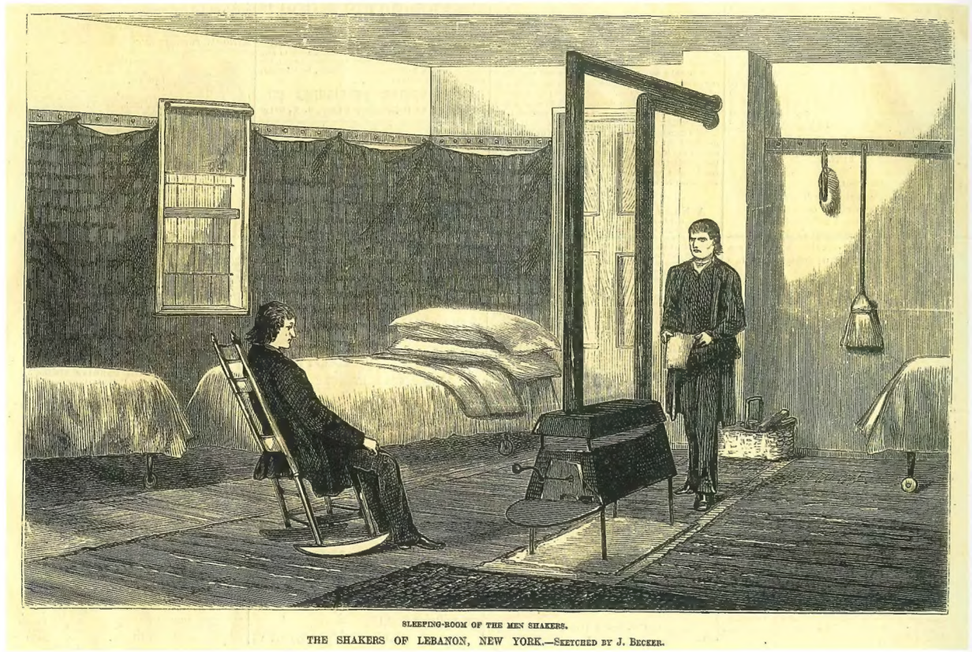
His design incorporated scalloped flanges of differing heights that stabilized the pieces laterally and a system for connecting the small sections of cast iron with a short pin at the end of one to engage a hole in its neighbor. Some of these caps are still in place on former Shaker buildings at the Harvard community. The corner piece is embossed: "E. Myrick's—Patent—May 25 1869" along with the name of the sales agent, J. D. Otterson and the place of manufacture, Nashua, New Hampshire. (Cast iron: corner piece, 3" × 8¼" × 9". Private Collection.)



This rare, possibly unique, surviving broadside (detail shown) reads, in part: "This invention was brought to public notice only a few months last season, and received unqualified approval of our intelligent mechanics, masons and builders." Although it only received patent protection in May 1869, testimonials date from June of that year. The last of these is dated February 1870. (Black ink letterpress on off-white paper, [full size] 10¼" × 7½". Courtesy of Hancock Shaker Village.)

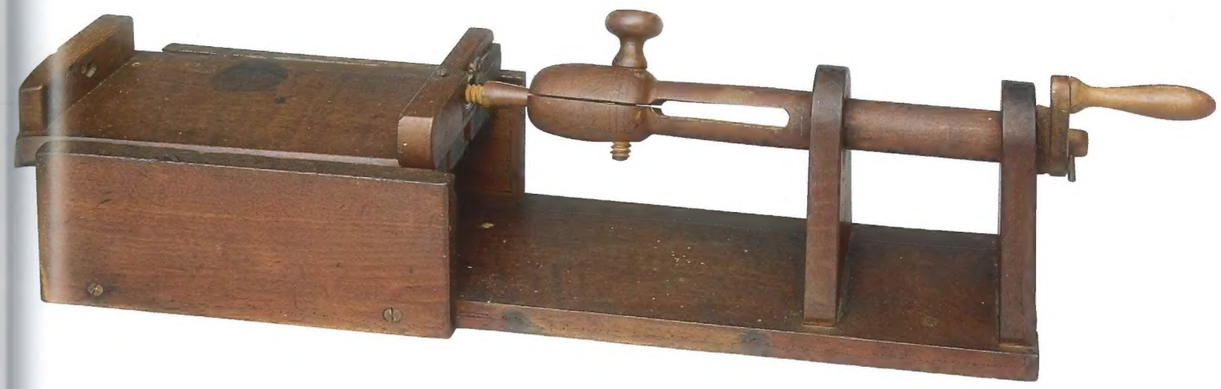


(Corner piece: cast iron, 3" × 8¼" × 8¼". Private Collection.)



SLEEPING-ROOM OF THE MEN SHAKERS.
THE SHAKERS OF LEBANON, NEW YORK.—SKETCHED BY J. BECKER.

The precise origin of the Shakers' version of a box stove is unknown, but early in the nineteenth century, box stoves were found throughout the eastern communities. The "exploded" view of component parts (with the legs not visible) shows how these devices were a model of simplicity: their few parts were held together mainly by the force of gravity (plus simple hinges for the door and air vent). Brethren cut and carved wood patterns for the portions of the stove that were cast, usually in the World—the base, firebox(es), and doors. Shaker blacksmiths forged the other elements such as legs and latches. The example illustrated here was called a "super-heater" because the presence of an upper firebox forced the heated air through this second chamber and radiated much more heat into a room. Sometimes an extended length of stovepipe was used to connect the stoves to a vent in the walls, adding more surface area to diffuse heat. (Cast and forged iron, 24" × 11¾" × 29". Courtesy of the Shaker Museum and Library and Illustration: *Frank Leslie's Illustrated Newspaper,* September 6, 1873. Courtesy of Hancock Shaker Village.)



Almost every interior wall in a Shaker village—rooms, hallways, shops, closets, and attics—was lined with a strip of peg rail (or pegboard). Turning individual pegs must have been a time-consuming job; even more labor intensive would have been the process of making threads in the end of each. Although some pegs were friction-fit into bored holes, most were threaded. These two innovative devices made at New Lebanon addressed this challenge. In both cases, a peg was clamped into place and turned against a blade. The shorter one was a hand-held device, the longer one was mechanical. Here, the top of the box with its fixed blade was gradually advanced while the user slowly cranked the handle. Turning threads in the boards was much simpler; only a drill press and threaded bit—or tap—was required.

(The common clothespin is frequently pointed to by the popular press as a Shaker invention. There is not a shred of evidence to support this contention. Shakers sometimes referred to their strips of peg rails as "clothes pins" since they hung a variety of garments from them and this seems to be the source of the confusion. It should also be noted that they did not "invent" peg rails either, but rather refined them.)

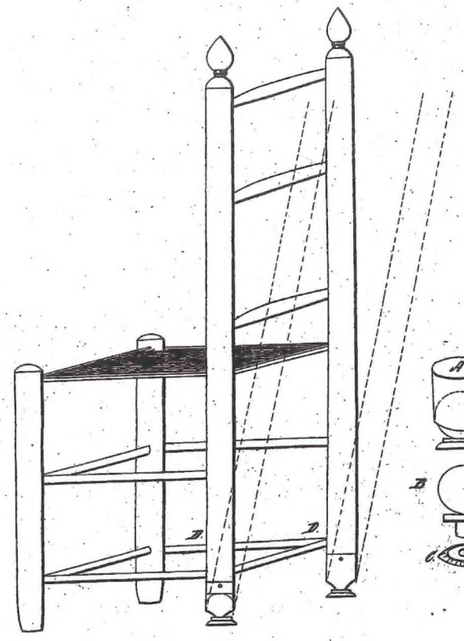
(ABOVE: cherry and hickory with iron hardware, 7¾" × 7" × 29". Courtesy of the Shaker Museum and Library and BELOW: maple with iron hardware, 13¾" × 4⅝". Courtesy of Hancock Shaker Village.)

Near the top of almost every Shaker enthusiast's list of significant innovations is the invention and further development of a tilting mechanism for the back posts of chairs—already discussed to some extent in Chapter 8. These took two basic forms—wood and metal. The wooden one gained popularity with Shakers in the 1830s and reached its apogee of refinement at Enfield, New Hampshire, at about that time. This side chair displays many of the refinements discussed with reference to rocking chairs in the previous chapter but here there are tilter buttons—half-rounded balls set into hollowed sockets at the bottom of each rear post. Close-up views show the ball with its knotted leather thong and, several inches higher, the end of the thong secured in place with a tiny tack. This mechanism not only prevented marring of floors, it prevented wear and even splitting of the post bottoms. (Birch and cane with original red paint, 41" × 18½" × 13½". Miller Collection.)

G. O. Donnell,

Chair Feet,

No 8,771. Patented Mar. 2, 1852.



In 1852, Brother George O. Donnell of New Lebanon was granted a patent (#8,771) for a metal counterpart to the wooden tilter. His Letters Patent reads: "The nature of my invention consists in a metallic ferrule [or collar], ball, and foot piece, combined; and applied to the back posts of a chair in such a manner, as to let the chair take its natural motion of rocking backward and forward, while the metallic foot piece rests unmoved; flat and square on the floor or carpet." While he does not specify the metal he had in mind, his patent model used a brass ferrule and pewter ball, held with a leather thong. [An exact reproduction, made by master cabinetmaker Timothy D. Rieman, is illustrated on the previous page.] (Drawing: reproduction from U.S. Patent Office, 10½" × 6½" and model: maple, brass, pewter and cotton tapes, 17¼" × 12" × 9". Courtesy of the Shaker Museum and Library.)

One application of Donnell's patent is this stunning side chair from New Lebanon, ca. 1855. The wood is highly figured birch (posts) and maple (slats) with a coat of clear varnish. The sense of lightness is enhanced by the use of woven cane for the seat and gently arched slats that graduate and flatten from bottom to top, the same features that visually "lift" the Enfield chair [previous page]. The close-up [above] shows that the entire tilter mechanism here is pewter. (Birch, maple, woven cane, and pewter, 42" × 18½" × 14". Courtesy of the Shaker Museum and Library.)

One of only a handful of inventions to be patented by the western Shakers was a sash balance. Brother Sanford J. Russell, who sometimes resided at South Union, Kentucky, sometimes at Union Village, Ohio (and sometimes in the World), advertised that he received a patent for his invention in 1872. What he actually did gain patent protection for that year (#129,367) was an *improved cord clamp* designed to be used with the sash balance. Illustrated on page 193 is a reproduction of the "improved" device, made from an old Shaker window sash but using new parts. Master craftsman John Munro constructed it for the exhibit. A length of cord attached to the lower sash was looped through a single, centrally located pulley fastened to the top frame of the window. The cord was pulled to raise this sash (and its own weight lowered it). The patented cord clamp consisted of opposing toothed cams that gripped the cord, preventing the window from sliding shut. The whole purpose of the system was to overcome the use of side cords and counterweights (which, paradoxically, seem to have been more convenient *and* hidden from sight). Perhaps that is why Brother Russell's invention did not succeed.

Shaker Sash Balance,

PATENTED BY S. J. RUSSELL, JULY 16, 1872, IMPROVED AND PERFECTED WITH CORD-HOLDER ATTACHMENT, FEB'Y 1, 1875.

A long felt want now fully supplied.

Fig 1

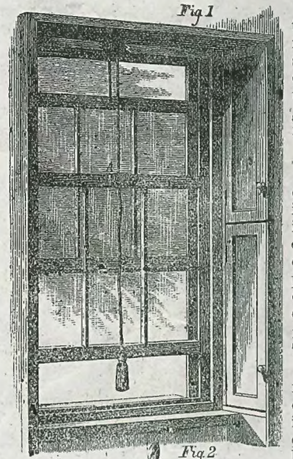
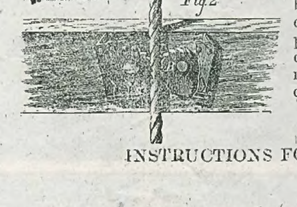


Fig 2



For years many our leading mechanics and others interested in the subject have been endeavoring to perfect a device to supercede the cumbrous and expensive sash-weights for the easy adjustment of windows, cheap, durable, easy in operation, and combining economy with utility. We are now fully prepared to supply this great want, having perfected a Sash Balance, combining the three great requisites, to-wit:

SIMPLICITY, ECONOMY, and DURABILITY.

We furthermore claim, and can fully establish, that our device is so utterly simple in its workings, in the impossibility of its getting out of order, the advantage it possesses over the unsightly catches and locks in an ornamental point of view, setting aside the cheapness of our Balance, that no intelligent housekeeper will fail to possess it as soon as its advantages are thoroughly understood.

OUR SASH BALANCE HAS THE UNQUALIFIED APPROVAL OF ALL BUILDERS, HOUSE CARPENTERS, ETC.

To further simplify the matter, we claim for the SHAKER BALANCE the following undoubted advantages over all other devices: 1st. The readiness with which it can be attached to any window, large or small, without the slightest cost. 2nd. The ease with which it can be operated. 3rd. Its great durability. 4th. The window is more securely locked in any position. 5th. Its perfect ventilation. 6th. It obviates the necessity of curtains or other hangings, as it is of itself highly ornamental. 7th. The advantage in a pecuniary light over every other device of the kind ever offered to the public.

THE SAVING IN COST IS IMMENSE.

INSTRUCTIONS FOR OPERATING THE BALANCE.

Balanced sash when closed top and bottom: by raising the lower sash, the top one will come down that much, giving the most perfect ventilation possible; this convenience supercedes anything extant.

To operate each sash seperately, when the upper one is closed at the top: Throw up the lower one and with the left hand under it, pull it against the front strips, thus it is easily held there, and with the right hand, pull the cord to the right, and down so as to raise the top sash up a little, this releases the grip of the eccentrics, and while you hold the cord to the right you have full command of either sash, and can place them in any desired position; now bring the cord to the center and the eccentrics resume their grip firmly.

When the lower sash is thrown up so as to double the upper one, with the left hand under both sash and the right hand at the cord, both are easily thrown up to their highest point, leaving all the ventilation or opening below.

To raise the lower sash easily, leaving the top one closed: Throw it up as high as you wish, holding it there with the left hand, and with the right by the cord, pull the top one up again. In repairing the sash with the balance, take off the butterfly-cord-holder on the top sash and both are free. This butterfly-cord-holder is an improvement and of malleable iron, will bear hammering on to the cord and screwing tight; put the open end down at the lower edge of the upper rail of the sash.

We append the following, descriptive of the above cut, from the Scientific American, without comment:

THE SHAKER SASH BALANCE.

Our illustration represents a very simple and ingenious device, which does away with the usual cords and pulleys on windows, by making one sash balance the other. It is cheap, readily applied, and will afford all the ventilation side weights do.

A cord (Fig. 1.) is firmly attached to the lower edge of upper rail (as exhibited in cut) with a single screw, by means of a metalic button, placed end downward, inside of which the end is coiled, and is then passed over a pulley, adjusted, as represented, in the upper part of the window frame, placed at a sufficient distance from the upper sash, to enable the cord to work freely, yet near enough to guide the sash into its proper place, obviating the necessity of parting strips in old buildings, where there are none usually. A short peice at the bottom is all that is necessary to steady the lower sash. The end of the cord extends down through the apparatus A, which is shown in detail in Fig 2, forms the essential portion of the device. It consists simuly in two eccentrics (B), secured in a suitably ornamental metal case, and fastened to the upper part of the lower case. It needs no explanation to show that one sash counterpoises the other, so that by a touch of the finger they may be raised or lowered to a given distance. If, however, it may be desired to move but one, and that the top sash, the operation is easily accomplished by drawing the cord to the right or left, which relieves the grip of the eccentrics. On straightening the cord, the latter immediately resume their clasp and hold the sash in any position. To raise the lower sash it is only necessary to hold the cord firmly and lift the sash with the hand, then it will remain as placed.

If you are building, the SHAKER SASH BALANCE will prove a great saving, both in cost and labor. If you have old windows permanently closed by broken springs, disordered box frames of old-fashioned construction, the "SHAKER BALANCE" will provide the means of opening and closing at pleasure, securing perfect ventilation.

GOOD AGENTS WANTED, for further particulars, samples, etc. address,

S. J. RUSSELL,

So Union, Logan Co., Ky.

(Broadside: black ink letterpress and wood engraving on off-white paper, 21" × 12". Collection of the United Society of Shakers, Sabbathday Lake, Maine)

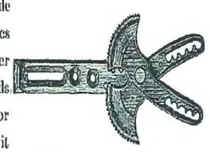
(Window sash with frame, pine, glass, and brass, 44" × 34¾". Courtesy of John Munro and Hancock Shaker Village.)

SHAKER'S

WINDOW SASH LOCK.

A new device for securing ventilation.

SIMPLE AND EASILY MANIPULATED, ADJUSTABLE TO ALL WINDOW SASH, SAFELY HOLDING EITHER AT ANY POINT, WITHOUT MARRING PAINT OR VARNISH.



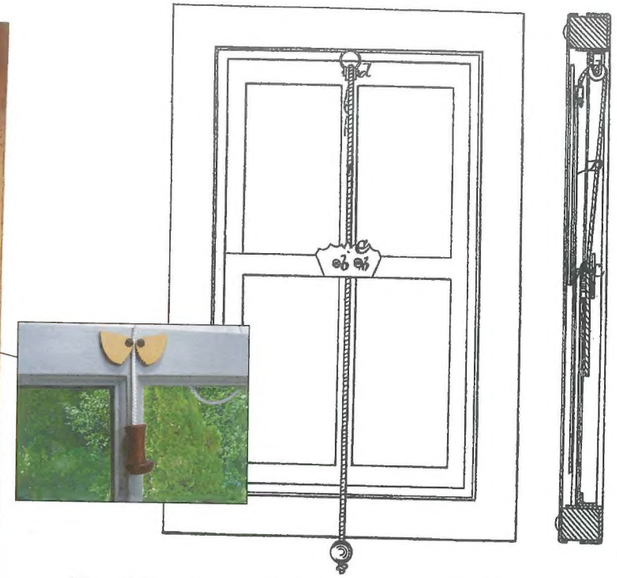
It consists of a clamp bar let loosely into the left side of the window frame, having two small lever eccentrics attached thereto by a screw or rivet, at the center where the sash comes together. The strip which holds the sash in place is let on the eccentrics, the lever or points only being visible. If a parting strip is used it should be cut off at the bar, so that the top may be used at pleasure.

By pressing on the points the position of the eccentrics is changed so as to press against the lower sash, causing the catch on the end of the bar to pull against the top sash, thus locking them so tight that it is impossible to move either without opening the points.

Also, the eccentrics, if desired, may be put on the left face of each sash frame, in which case they will perfectly lock and tighten the sash and destroy all shaking and rattling by winds or otherwise. In this case the eccentrics are visible. The strip must be sawed off from the lower eccentric upwards, the thickness of the eccentrics, so that it will work against the under frame. When the sash is too loose to be tightened by the eccentric, tack two bits or a strip on the right-hand edge.

In short, it is the simplest, safest and best sash lock in existence, and needs only to be seen to be appreciated. Sample sent by mail for twenty-five cents.

South Union, Logan Co., Ky. S. J. RUSSELL.



(Detail from Letters Patent, dated July 16, 1872; "Improvement in Cord-Clamps." Copy: Miller Collection.)

This cast brass clamp cover is a rare surviving example. (Brass, 1½" × 3¾". Private Collection.)

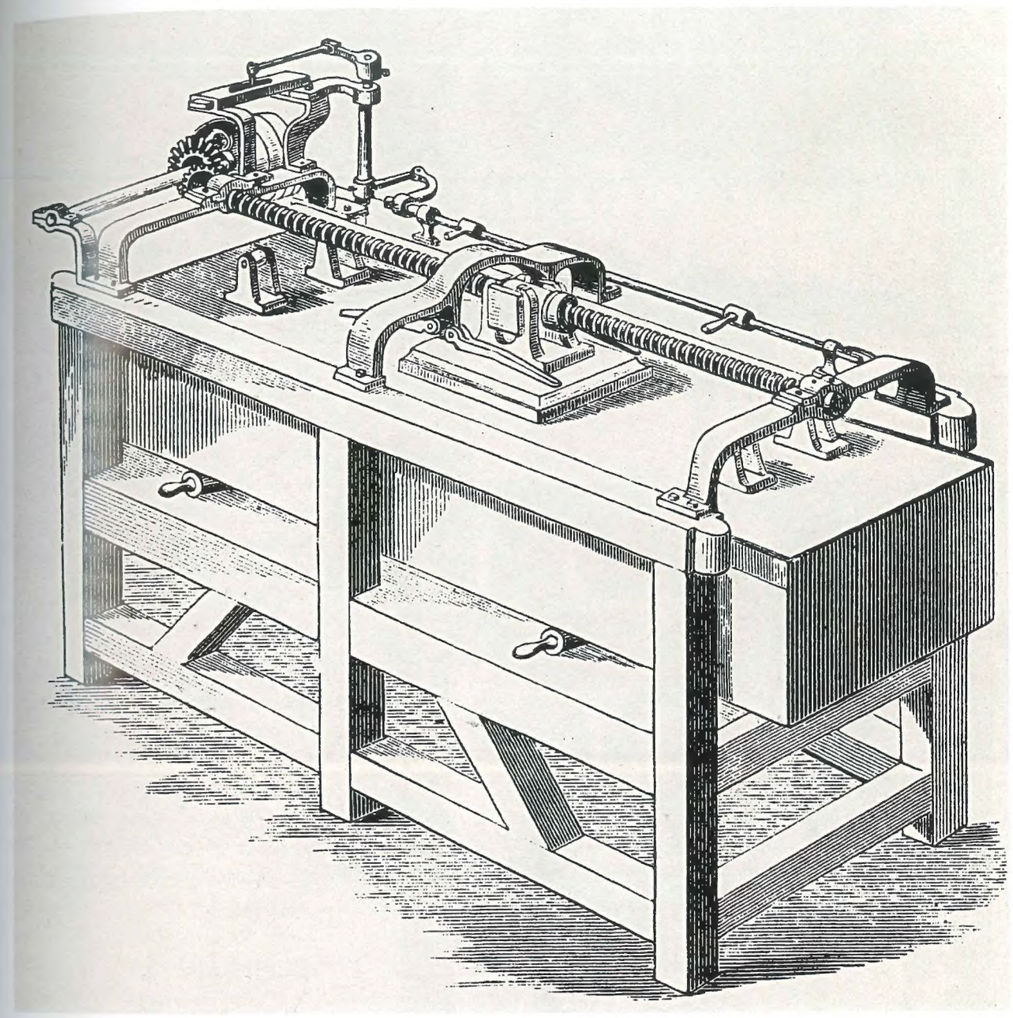
In about 1877 Brother Russell (if, indeed, he was a Shaker at this time) came up with another invention that was advertised heavily in *The Shaker Manifesto* the following year. This was a window sash lock. It was attached to a window sash and when the swiveling cams were apart it did not make contact with the frame. Users wishing to secure a window—open or closed—pinched the levers, forcing the cams against the frame and preventing someone from moving the window from the outside. Russell never received patent protection for this invention and no more is known of it, nor are there any known surviving examples.

(LEFT: Black ink letterpress and engraving on pale green paper, [detail] 7" × 7". Courtesy of Hamilton College Library Digital Collections.)

N. CHASE.
Improvement in Folding-Stereoscopes.
No. 129,100. Patented July 16, 1872.

Stereoscopy, invented in 1840, reached its height of popularity in the 1870s and continued through the First World War. The technology for it used two magnifying lenses to look at two nearly identical images, photographed from slightly different angles. The lenses, separated by 3½", the average spacing between human pupils, allowed the viewer's eyes to readily form a *third* picture—this one in the third dimension—permitting a realistic sense of depth. In 1872, Brother Nelson Chase (1830–1898) of Enfield, New Hampshire, received a patent (#129,100) for a "new and Improved Pocket Stereoscope." Made mostly of tin, with its main components pivoting and folding, this device was small and light enough to be carried in one's pocket. It sold for $15, about $255 in 2009. Elder Henry Blinn of Canterbury had this to say in 1873 of his efforts to sell them: "Its neatness, compactness, and general appearance was highly commended by all, but the price was thought to exceed propriety . . . [even] with 20 per ct. off at wholesale or by the doz." This may be the finest surviving example, with its label intact.

(Tin and unknown wood, 7" × 5¼" × 2" [folded], 13" × 5⅜" × 2¾" [open]. Courtesy of Hamilton College Special Collections and Stereocard, 3⅞" × 7". Private Collection.)

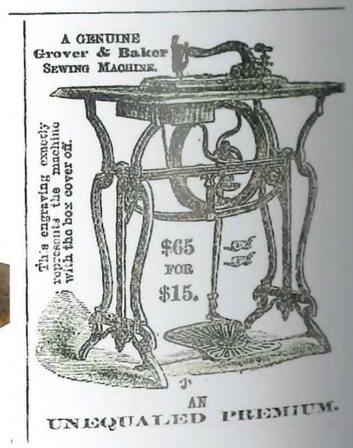


Between 1878 and 1884 the Canterbury community advertised this "Improved Shaker Mangle" in *The Shaker Manifesto*. Mangles were devices designed either to extract water from laundry as a wringer or to press fabrics using heated rollers. This seemingly was designed for the former, with a top connected to a mechanism that lowered it and squeezed the contents inside the box. No drain is evident, though, and the purpose for the rollers is unclear. Perhaps it performed *both* functions. The copy that sometimes accompanied the advertising does not clarify its use: "This mangle is very heavy and strongly built; runs smoothly, and performs excellent work and is easily kept in repair. Even to laundries already supplied with steam cylindrical mangles, this machine is a very necessary addition." It was never patented, and no sales figures for it are known to have survived.

(Black ink letterpress and wood or metal engravings on light blue paper, full page size 9½" × 6". Courtesy of Hamilton College Library Digital Collections.)

This jigsaw is an example of Shakers' clever adaptation in the realm of innovation. The wood or metal cut of a commercial sewing machine [below], manufactured by Grover and Baker, appeared in the 1878 issue of *The Shaker Manifesto.* (Most of the advertisements in this Shaker-published monthly were from the World.) The Shakers at some point took a similar sewing machine, mounted it on a wooden platform, added a wood frame and table, and inserted a fine saw blade where a sewing needle once was. The community of origin for this piece is not known.

(BELOW: Illustration: black ink letterpress and wood or metal engraving, [detail] 3⅛" × 3⅛". Courtesy of Hamilton College Library Digital Collections and LEFT: Saw: ash, pine, cherry, rubber, and iron, 53" × 42" × 21½". Courtesy of the Shaker Museum and Library.)



13
Innovations in Music and Song

CAROL MEDLICOTT

MUSIC HAS ALWAYS played a defining role in Shaker life. The primary distinguishing feature of Shaker worship—divinely inspired bodily movements and dancing—was a "gift" accompanied by singing. Many early observations of the Shakers focus upon Believers' distinctive singing. Perhaps not surprising for a sect based on dissent from established churches, the Shakers for the most part rejected the music and hymnody of surrounding traditional Christian congregations. Instead, they drew on the creativity of their own members to infuse their evolving culture with music. A vast number of Shaker music manuscripts survive, pointing to the importance of this category of their creative output.

Shakers' musical innovations stand in sharp contrast to those of other religious sects. Although Shakers were marvelously inventive in devising their own system of musical notation, that is not the most significant aspect of their musical innovation. Notation mattered to them to the extent that it served the higher goal of facilitating the production and sharing of music throughout the community. A far more profound innovation lay in how they democratized music production among the rank-and-file of members. Shakers permitted music to grow organically from within each community. In contrast, other religious denominations of the nineteenth century removed music production from practitioners' hands and redirected it to distant, institutionalized boards and publishing houses. For the Shakers, the process of producing music was deeply embedded in the everyday lives of all individuals, in all communities, east and west. Every Believer possessed equal potential for experiencing a musical "gift" that could be integrated into the ever-growing repository of music. For a sect in whom rigid leadership hierarchies helped to impose "Gospel Order," music production was remarkably free of hierarchical control. Musical gifts could issue from the humblest Believer to those holding the higher offices of Elder/Eldress or Father/Mother. They came from women and men, teenaged to elderly, white and black, mixed-race, and recent immigrants. And during many periods of Shaker history, songs poured forth spontaneously in seemingly endless quantities, sometimes in the very midst of worship, yet such music was meticulously written down for posterity.

Along with democratization, another remarkable innovation was the application of music to the challenges of geographic separation. Shakers have been the most geographically diffused communal society

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THIS BOOK IS DEDICATED
TO THE MANY STUDENTS
OF SHAKER HISTORY
AND CULTURE,
PAST AND PRESENT,
WHO HAVE STRIVEN
TO TELL THE
SHAKERS' STORY
TRUTHFULLY
AND FAIRLY.

YOUR GOOD WORK
WILL ENDURE.

For Dick,
With best wishes
always,
Steve
5/13/23